

**[0026]** The processor may be further configured to control the display to display a brightness and a color of the boundary area by overlapping a brightness and a color of another boundary area of another illumination in an overlapping area of the boundary and the another boundary area, in response to an overlap between the boundary area and the another boundary area.

**[0027]** The processor may be further configured to assign a weight to respective incremented levels of brightness for pixels in an overlapping area of the boundary area and another boundary area of another illumination, in response to an overlap between the boundary area and the another boundary area.

**[0028]** In another general aspect, a method of displaying an illumination includes: determining, using a processor, a first illumination area corresponding to light projected by a first light source, a second illumination area corresponding to light projected by a second light source, a first boundary area of the first light source, wherein the first boundary area includes a first boundary and a portion of the first illumination area that is less than all of the first illumination area, a second boundary area of the second light source, wherein the second boundary area includes a second boundary and a portion of the second illumination area that is less than all of the second illumination area, and an extended boundary area based on an overlap area in which the first boundary area and the second boundary area overlap; and visualizing, using the processor, an illumination effect produced by the first and second light sources with respect to the first boundary area, the second boundary area and the extended boundary area.

**[0029]** The visualizing may include: increasing brightness for a pixel in the first boundary area compared to a brightness adjustment for a pixel in a remainder of the first illumination area; and increasing brightness for a pixel in the second boundary area compared to a brightness adjustment for a pixel in remainder of the second illumination area.

**[0030]** The visualizing may further include adding, in the overlap area, a brightness adjustment for a pixel in the first boundary area and a brightness adjustment for a pixel the second boundary area.

**[0031]** The visualizing may include overlapping, in the overlap area, a color of the first boundary area and a color of the second boundary area.

**[0032]** Other features and aspects will be apparent from the following detailed description, the drawings, and the claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0033]** FIG. 1 is a flowchart illustrating an example of a method of displaying an illumination.

**[0034]** FIG. 2 is a flowchart illustrating another example of a method of displaying an illumination.

**[0035]** FIG. 3 illustrates an example of a process of determining an illumination area.

**[0036]** FIG. 4 is a flowchart illustrating yet another example of a method of displaying an illumination.

**[0037]** FIGS. 5 and 6 illustrate other examples of processes of determining an illumination area.

**[0038]** FIGS. 7 through 11 illustrate examples of visualizing a boundary area.

**[0039]** FIGS. 12 through 15 are block diagrams illustrating examples of a device for displaying an illumination.

**[0040]** Throughout the drawings and the detailed description, unless otherwise described or provided, the same

drawing reference numerals will be understood to refer to the same elements, features, and structures. The drawings may not be to scale, and the relative size, proportions, and depiction of elements in the drawings may be exaggerated for clarity, illustration, and convenience.

#### DETAILED DESCRIPTION

**[0041]** The following detailed description is provided to assist the reader in gaining a comprehensive understanding of the methods, apparatuses, and/or systems described herein. However, various changes, modifications, and equivalents of the methods, apparatuses, and/or systems described herein will be apparent to one of ordinary skill in the art. The sequences of operations described herein are merely examples, and are not limited to those set forth herein, but may be changed as will be apparent to one of ordinary skill in the art, with the exception of operations necessarily occurring in a certain order. Also, descriptions of functions and constructions that are well known to one of ordinary skill in the art may be omitted for increased clarity and conciseness.

**[0042]** The features described herein may be embodied in different forms, and are not to be construed as being limited to the examples described herein. Rather, the examples described herein have been provided so that this disclosure will be thorough and complete, and will convey the full scope of the disclosure to one of ordinary skill in the art.

**[0043]** The terminology used herein is for the purpose of describing particular examples only and is not to be limiting of the examples. As used herein, the singular forms “a,” “an,” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms “include/comprise” and/or “have” when used in this specification, specify the presence of stated features, integers, steps, operations, elements, components, and/or combinations thereof, but do not preclude the presence or addition of one or more other features, numbers, steps, operations, elements, components, and/or groups thereof.

**[0044]** Unless otherwise defined, all terms including technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which examples belong. It will be further understood that terms, such as those defined in commonly-used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

**[0045]** When describing examples with reference to the accompanying drawings, like reference numerals refer to like constituent elements and a repeated description related thereto will be omitted. When it is determined detailed descriptions related to a related known function or configuration may make the purpose of the examples unnecessarily ambiguous, such detailed descriptions will be omitted here.

**[0046]** FIG. 1 is a flowchart illustrating an example of a method of displaying an illumination.

**[0047]** Referring to FIG. 1, in operation S110, a processor of a device for displaying an illumination determines an illumination area to which a light or illumination produced by a light source assigned in a virtual space is projected based on illumination information. Although the illumination or light source assigned and used in the virtual space is